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ANNUAL REPORT,

1876-77.

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The Parkes Museum
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ANNUAL REPORT, 1876-77.

FIFTEEN meetings were held by the Society during the year that ended on June 30th, 1877; eight of these were the ordinary monthly meetings held in the session—from October to May—devoted to papers and discussions on sanitary and its allied subjects; five were meetings of the Council; one was a special meeting; and the annual meeting in July, at which the election of officers takes place and the general business of the Society is transacted.

The meetings of the Society have all been held in the Scottish Corporation Hall, which continues to be generously placed at its disposal for that purpose.

Amongst the changes that have taken place in the list of members may be noticed the death of Dr. Rumsey, who had been for many years associated with the Society as one of its honorary members. It is unnecessary to do more than allude to the zeal and earnestness with which he had for so long a period advocated measures of sanitary progress. Dr. E. W. Symes, having ceased to hold the office of Medical Officer of Health for Skipton, Yorkshire, will be placed on the "Retired" list. The following gentlemen were elected extra-metropolitan members:—Dr. A. B. Brabazon, Bath; *G. Cockburn Smith, Esq., Newtown, Montgomeryshire; H. Rees, Esq., Llanberis, Carnarvonshire; Lee F. Cogan, Esq., Northampton; Dr. J, Hardwicke, Rotherham; F. A. Best, Esq., Walthamstow; and H. Jessop, Esq., Cheltenham.

The Society now consists of 156 members, namely, 36 metropolitan and 69 extra-metropolitan members, 18 retired medical officers of health, 15 associates, and 18 honorary members.

The Society will learn with regret that Dr. Buchanan, who has filled the office of President for the last two years with so much advantage to the Society, has intimated his desire not to be again nominated to that position, this step becoming necessary from the pressure of other engagements.

* Since resigned.

The acknowledgments of the Society are due to Dr. Tidy, who kindly undertakes the monthly analysis of the metropolitan waters. Two reports—one more elaborate than the other—are regularly published in some of the medical, chemical, and the daily journals.

The Society having unanimously passed the following resolution—"That a testimonial be presented to Dr. J. Northcote Vinen, Honorary Secretary of the Society, in acknowledgment of the services rendered by him to the Society during the fourteen years that he has held the office of Secretary; and that the Society hereby records its best thanks to Dr Vinen, and its hope that he may continue for many more years his valuable services to the Society"—a committee was appointed to invite subscriptions, and the appeal having been responded to by nearly all the metropolitan members, and by many extra-metropolitan members, retired medical officers of health, associated members, and honorary members, a silver jug (facsimile of the Cellini Vase) and two goblets to correspond, with a suitable inscription, were presented to him at a meeting of the Society, on May 18th, with a copy of the above resolution written on vellum, and signed by the President, by the Treasurer, and by his co-Secretary.

The following is an abstract of the papers read before the Society during the session, and the subjects to which its attention was directed:—

I. An address was delivered by the President on "*Citizenship in Sanitary Work.*" He said that the science of hygiene is far in advance of its practice in this country; but that if the community would only act up to such knowledge as it has of the laws of health, a vast amount of suffering might be avoided. The questions then arise—What can be done to make people more careful of their own health and the health of those dependent on them? and what is to be done to make sanitary authorities more active in the performance of the duties with which they are charged? In the opinion of many these questions are answered by giving greater powers of compulsion to a central board; but it is clear that this would not suffice; that it was necessary to obtain a due education of the people to enable them to understand the value of sanitary measures to themselves and the community, and to induce them to send to Sanitary Boards people instructed to devise and execute the required sanitary regulations. The position

that compulsion cannot well precede the education of the community was illustrated by a reference to the successive steps of the legislation that ended in vaccination being made really compulsory; and to the provisions of the Metropolis Building Act, 1844, relating to certain noxious trades, provisions which were to be enforced only after the lapse of 30 years, and which it was found that public opinion was not prepared efficiently to compel even at the end of those 30 years. In further illustration of the advantage of popular education in sanitary matters, a history was given of the progress of sanitary legislation in the State of Massachusetts. A Sanitary Commission was appointed in that State in the year 1849, which reported that the laws were inadequate for the maintenance of health, and that the duration of life was decreasing. The Commission advised that a General Board should be formed, with local boards in townships, and a General Secretary, whose business it should be to diffuse a knowledge of sanitary subjects, while the local boards should carry out the orders of the central board and the details of local administration. Sanitary libraries were to be established, and officers of health to be appointed, with a duty to report to the inhabitants of the townships. The report of this Commission did not at once bear fruit; but through its agency and in other ways the people became educated and their sympathies enlisted, so that in 1869 a State Board of Health was established, whose first step was the characteristic one of sending to the municipal authorities of every city and town, to every member of the legislature, and to every physician and clergyman in the State, a circular letter, desiring "that all may work together for the common advantage of the people, for the prevention of disease, and for the prolongation of life." In a few years weekly returns of sickness were published from the reports made regularly by 115 physicians. Slaughter-houses and bone-boiling establishments were the first to be put under systematic regulations, and many of them were suppressed; public abattoirs were erected; the houses of the poor were improved; and means were adopted for preventing the spread of infectious diseases. In applying this history to ourselves, Dr. Buchanan dwelt on the ignorance and consequent indifference of the people generally of the value of sanitary measures, and the absence of any machinery for their instruction. Officers of Health should consider it to be their duty to instruct the members of their boards, and the inhabitants of their districts, in sanitary science. He asked why there

was not in every city an association like that of Manchester and Salford, which had for many years assisted in spreading a knowledge of sanitary laws. Although London was too large for one such association, still, people should be taught to understand much better than they do at present what are their duties as well as their rights, and then there would be little difficulty in making and carrying out laws to restrict the spread of disease.

In the discussion that followed this address, the opinion generally expressed was that it is important to instruct the people in sanitary measures, instead of merely endeavouring to obtain more stringent laws.

II. Mr. T. W. Crosse (Norwich) read a paper entitled "*A few Remarks on Contagion and its Prevention.*" He confined himself chiefly to discussing the best modes of preventing the spread of contagion, and the persons who should be charged with the duty of giving intelligence of the existence of contagious disease to Medical Officers of Health. He gave a history of a local epidemic of scarlet fever in Norwich, where children, as yet unaffected by the disease, slept in the same bed with others suffering from it, while other children from the same houses continued to attend a day school. He had, in this case, urged the necessity for isolation, and the desirability of appointing some official to obtain information as to the cause of absence of scholars. He considered that additional legislative powers were required for preventing infected persons from going into public places, and especially children from attending schools. Early information should be given of the existence of infectious disease to the Medical Officer of Health. This could be procured either by a paid inspector, from the medical attendant, or from the householder, or the person in charge. He thought that the householder or the person in charge should be compelled to give the information, there being considerable objections to obtaining it in either of the other ways. The supplying of this information should be made compulsory under the same penalty as that now provided for the exposure of infected clothing; the neglect should be treated as a misdemeanour. Mr. Crosse suggested that the Society form a deputation to the Home Secretary on the subject, and endeavour to obtain legislative action during the next session of Parliament.

In furtherance of the recommendations contained in Mr. Crosse's paper the following resolutions were passed:—

(1) "That, in the opinion of the Society, whenever a case of infectious disease occurs in any house or vessel, it should be the duty of the person in charge of the house or vessel, or of the person in charge of the case, to report the fact to the Sanitary Authority without delay.

(2) "That it should be the duty of every Medical Practitioner in attendance upon any such case, to give immediate information respecting its nature to the occupier or other person responsible for reporting it to the Sanitary Authority.

(3) "That the Council be requested to form a Deputation for the purpose of bringing these views under the consideration of the Government, and to endeavour in other ways to promote the above views.

(4) "That such Deputation be desired to represent to the Government the generally unsatisfactory nature of the present legislative provisions for preventing the extension of infectious disease, and the need for enquiry into the subject."

In accordance with the third resolution, a deputation had an interview with Mr. Sclater-Booth, President of the Local Government Board, and impressed upon him the importance of legislative action being taken in the way indicated especially in the first and second resolutions.

Mr. Sclater-Booth, whilst acknowledging the importance of the proposals submitted to him, expressed his belief that public opinion on these matters was not sufficiently advanced to allow of their being made law. He therefore was not prepared to take any action with regard to them at present, but at the proper time the proposals would receive due consideration.

III. Dr. Thursfield (Shrewsbury) read a paper on "*The Regulations of the Public Elementary Schools in reference to Sanitary Progress.*" He dwelt especially upon the injurious effects of the present regulations in leading to the attendance of children who were likely to spread infectious diseases. He pointed out, that attendance being one basis of payment to the masters, and the amount of education another, it is the interest of the master to have as large an attendance as possible both at the daily classes and at examinations. He considered that children absent through sickness should be counted as present. The plan now adopted operated in preventing the master giving notice of the prevalence of zymotic diseases, until his school was so reduced in number that it would be better for him to have it closed. He proposed a number of regulations for preventing the spread of epidemic diseases, one of the most important of these was that it should be made a statutory offence knowingly to send a child to school from a

house in which there is any one suffering from any dangerous infectious disease. He drew attention to the defects in the construction and arrangements of many of the school buildings as being ill-built, ill-drained, and imperfectly ventilated; and described many improvements which he thought should be adopted. He considered that the amount of floor space—8 square feet per child—and 80 cubic feet of air, was too small, and he related instances of the evils he had observed to arise from this system of overcrowding. He suggested that some of the first principles of sanitary science should form part of the education in these schools; and observed that if nothing more was acquired than the habit of opening the windows of an unoccupied room, and something of the deodorising properties of dry earth, that children would not have been instructed in vain.

IV. Dr. J. Burdon Sanderson, F.R.S., read a paper on "*Contagium Vivum*." He observed that contagia were concrete particles, non-soluble and non-diffusible; their permanency after action on other bodies distinguished them from chemical substances, and their action from chemical action. Their particulate nature was deduced from the facts of disease, and especially the limitation of the contagion to a comparatively small space around the infected person, and from the fact that contagious particles are separated by subsidence or by filtration from contagious liquids. It has been assumed that they are living because they do not undergo molecular change when acting on other bodies, and it is conceivable either that they are products of diseased tissues, or that they are independent organisms; on the other hand, they may be of the nature of unorganised ferments, such as exist in the pancreas, in the blood, &c. These cannot be said to be organisms, for they have no structure; and are not mere chemical substances, for they do not change when they act on other bodies. Bacteria can be produced in swarms in a medium in which the highest powers of the microscope fail to detect any structure at all—either their germs are almost inconceivably small, or else they are developed in a structureless substance—hence we have panspermists on the one hand and heterogimists on the other. Such germinal matter being, so far as we can ascertain, structureless, must be considered to be the borderland between living organised bodies and non-living unorganised bodies, and may be looked upon as living though unorganised. Its existence and its properties are not

however a matter of chance, but certain circumstances are necessary for its presence and for its development; thus surgical diseases following wounds, &c., are produced by matter from the atmosphere, and may be prevented. Lister's plan ensures absence of septic change, but must be accurately carried out. The worst forms of these diseases are not coincident with the worst wounds, but with most general disturbance. And again, certain diseases are spread by special contagious matter, which is not necessarily in the form of germs. Thus in small-pox pustules organisms were found; but were they the morbific agents? Haller found that there was no relation between the microscopic characters of vaccine lymph and the success of the operation, lymph containing no organisms acting as well as lymph containing them; also organisms from vaccine matter had been planted in serum by Mr. Godbee, and had multiplied, and yet there was never any success in vaccinating with such serum.

V. Dr. T. O. Dudfield read a paper on "*Pleuro-pneumonia in Cattle, with especial reference to the question—whether the flesh of Cattle affected with this disease should be allowed to be sold and used for the food of Man, or should be condemned as being either diseased, unwholesome, or unsound.*" He described pleuro-pneumonia as being an infectious and contagious disease peculiar to the ox tribe, and only known in this kingdom since 1842. Its nature even now was not well understood, and was still under investigation. It had been described as a blood poison eliminated through one or both lungs; was hereditary, inoculable, and incurable. There appeared to be no very decisive information whether the flesh of diseased animals could be eaten without ill effects. The opinions expressed only went so far as a presumption that the flesh of animals suffering from an infectious blood disease must be regarded as unfit for the food of man. A committee of the House of Commons, in 1864, had expressed an opinion that such meat was only innutritious. The opinions of Drs. Thudichum, Burdon Sanderson, Edwards, Crisp, Simonds, and Mr. G. T. Brown, were quoted: Dr. Thudichum thought such meat was unwholesome, whilst the others were of a contrary opinion. Dr. Dudfield considered the meat of animals killed while suffering from disease should not be sold as sound, or at the price of sound meat; and that it was a question whether meat should not be classified, and that of a confessedly diseased animal labelled.

VI. Dr. C. M. Tidy followed with some observations on "*Diseased Meat, the characteristics of good Meat, and the circumstances under which Meat should be condemned.*" Having entered into the general question of the effects of eating unsound meat, he stated that he had seen severe symptoms of poisoning arise in consequence of eating bacon and veal in a slightly mouldy state. Several theories had been raised as to the cause of these symptoms occasionally resulting from the use of meat in a state of modified putrefaction. In his own investigations he had found that all the cases occurred in the months of March, April or May, which, he said, pointed to the probability of the ill effects being due to the development of cryptogamous organisms. With regard to trichinæ, it was generally supposed they were found almost exclusively in pork, but he had found them more numerous in beef. They were not killed by salting, pickling, smoking, or by putrefaction; but were destroyed by a temperature that would coagulate albumen. The effects of trichinæ in the human system frequently resembled those of poisoning; and he considered that meat in which these parasites existed should not be sold for food. Nor would he allow the flesh of cattle affected with pleuro-pneumonia to be eaten, although this had often been done with impunity, which might be due to the peculiar protective power possessed by the stomach. Although the evidence of ill effects having arisen from the consumption of such meat was very unsatisfactory, the meat was certainly in a state of perverted nutrition, and therefore unfit for human food. He considered that the flesh of animals killed immediately before, during, or after parturition, should not be eaten. The characteristics of good meat were described as being neither of a pale pink, or of a deep purple colour; the former was a sign of disease, the latter indicated that the animal had not been slaughtered, or that it had suffered from acute fever. Good meat should be marbled, firm, and elastic to the touch; it should have little or no odour, which should not be disagreeable. He held it to be safer to err by destroying meat which might not be injurious, than by laxly permitting its use; he therefore considered that the flesh of diseased animals should not be sold for the food of man.

In the discussion that followed the reading of these papers, it was observed that few fresh facts had been adduced since this subject was investigated by the Society some years ago, and that there was no evidence of any ill effects resulting from the consumption of the meat of animals affected with pleuro-

pneumonia or cattle plague. Altogether, the balance of evidence appeared to show that no definite harm had been caused by the flesh of animals suffering from febrile or chronic complaints.

VII. Dr. J. S. Bristowe read a paper entitled "*The mutual relation of the Birth-rate and the Death-rate.*" Dr. Bristowe exhibited a series of tables, showing the mean duration of life under death-rates varying 0·5 to 4·0 per cent., as determined by these death-rates, and by birth-rates varying for each case from about 100 to zero. He showed from these tables that, just as with a stationary birth-rate, the mean duration of life increases as the death-rate falls, and decreases as the death-rate rises, so in the same way with a stationary death-rate, the mean duration of life increases as the birth-rate falls, and diminishes as the birth-rate increases. He showed further that (under possible conditions) the health of a population, as determined by the mean duration of life, might be the same under widely different death-rates. "Thus," he observed, quoting from the tables, "the mean duration of life is the same (namely 81 years) with a death-rate of 0·5 per cent., and a birth-rate of 2·5 per cent., as with a death-rate of 1 per cent., and a birth-rate of 1·5 per cent.; or with a death-rate of 1·5 per cent., and a birth-rate of 1 per cent. It is the same (namely 37 years) with a death-rate of 1·5 per cent., and a birth-rate of 4.5 per cent., as it is with a death-rate of 2 per cent., and a birth-rate of 3·5 per cent., or a death-rate of 3·5 per cent., and a birth-rate of 2 per cent. It is the same (namely 58 years) with a death-rate of 0·5 and a birth-rate of between 4 and 4·5 per cent., as it is with a death-rate of 4 and a birth-rate of 0·5 per cent." He pointed out that, although he had assumed that all individuals of a population attained the same age, and that the children of each year were (so to speak) born in a lump, and after a time died in a lump, his results did not depend on that assumption, but were equally true if (as in nature) the mean duration of life was the resultant of lives varying widely among themselves in length, and births and deaths, instead of occurring in groups, were uniformly distributed. Dr. Bristowe applied the foregoing results to the vital statistics of Camberwell and of its sub-districts, and pointed out how the same relation, as regards mean duration of life, existed between the immigration-rate and death-rate as between the birth-rate and death-rate—with this difference however—that whereas from the birth-rate and death-rate was

obtained the actual mean duration of life; from the immigration-rate and death-rate was obtained only the mean duration of the time during which immigrants were residents. He alluded to some other conditions which, apart from actual unhealthiness, modify the death-rate, and interfere with its value as an index of healthiness. He thus endeavoured to show that a certain average duration of life might be maintained with widely different rates of birth and death occurring in a relatively varied but definite population.

VIII. Dr. E. B. Baxter read a paper on "*Disinfection in its Theoretical Aspects.*" He said that some years since he had suggested that the term "disinfectant" should be restricted to "agents capable of so modifying the contagium of a communicable disease during its transmission from a sick to a healthy individual, as to deprive it of its specific power of infecting the latter." On account of the numerous fallacies that existed with regard to the nature of disinfectants, a clear distinction as to their value ought to be drawn. His own experience led to the conclusion that the only irrefragable evidence of their value was that furnished by examination into the virus of communicable diseases. This he termed the *direct* method of investigation, which he thus described: If a certain quantity of virulent material were divided into two parts, one being subjected to disinfection and the other left intact, and if the two samples were inoculated into susceptible individuals, and it was found that the disinfected sample was harmless while its fellow retained its infective quality, then they would be entitled to affirm that the disinfecting agent was effectual. But this test was difficult of application, and in only a few diseases, as small-pox, cow-pox, and glanders, could material be obtained. Small-pox and glanders obviously did not admit of being experimentally inoculated. About the contagia of typhus, scarlet fever, measles, enteric fever, plague, and cholera, they knew little more than that they existed. He did not doubt that these diseases were reproduced by a bond which connected it with a previous case of the same disease, and that by a perfect fulfilment of disinfection they might be altogether extinguished. He and others had examined into the effect of dry heat, carbolic acid, permanganate of potass, sulphur dioxide, and chlorine, on vaccine and the virus of glanders. The knowledge gained was valuable, but small in amount. An easier way of deciding the claims of disinfectants he termed the *indirect* method. Putrefaction depended on the growth

and multiplication of septic microzymes, but this process would not begin so long as the accession of these organisms was prevented, and the degree of putrefactive change would depend on their number and reproductive activity. Any agent which would prevent the growth or development of septic microzymes would prevent putrefaction, and was therefore antiseptic. The agents which stopped the reproduction of septic microzymes were antiseptics—such as deprived them of life were germicides. All germicides were antiseptic, but all antiseptics were not germicides. Carbolic acid, for instance, was antiseptic in small quantities, but was not a germicide until present in the proportion of 2 per cent. of the solid acid. Dr. Baxter's experiments led him to believe that the germs of septic microzymes were less easily killed than any of the contagia hitherto investigated, and that the germs were better protected when diffused in an alkaline than in a neutral liquid; the resistance of contagia themselves to destructive agencies was insignificant in comparison with that conferred on them by their media. Germicidal power, he considered, might be taken as a measure of disinfectant power, provided full allowance be made for the protective influence of media. He thought the list of disinfecting agents might be more profitably reduced than extended. The two agents which he considered the cheapest and most effectual were heat and sulphurous acid. Evidence derived from observation, experiment, and that from comparison of germicidal potency—were all in their favour. Their superiority consisted in their greater power of reaching contagia under varying conditions. He considered it advisable to have recourse to these agents in the first instance, and to devote attention to their varying application, rather than to cast about for new substitutes of inferior and doubtful value.

IX. Dr. E. C. Seaton (Nottingham), continued this subject by some remarks on "*Disinfection in its practical aspects.*" He proposed referring to the disinfecting measures necessary to be adopted after sickness, for the protection of others from the danger of infected bedding, clothing, &c. Linen articles should be boiled in a solution of about 2 per cent. of (solid) carbolic acid. Bowel discharges, sputa, &c., should be treated with permanganate of potass, or carbolic acid. Bedding and clothing should be subjected to dry heat of such a temperature as to ensure disinfection, but without injury to the articles. The best apparatus for effecting this object was Dr. Ransome's, of Nottingham—the mode of working which was explained

by the aid of diagrams. Specimens were exhibited of hair, cotton and silk fabrics, and blankets, which had been exposed to the heat of the disinfecting chamber for periods of some hours, without apparent injury to the material. Some of the blankets exhibited had been baked upwards of thirty times. The degree of heat used was about 250 degrees Fahr. In Nottingham, the apparatus was partly self-supporting, a small charge being made for articles disinfected. He had assumed dry heat to be the best disinfectant, and he had endeavoured to confine attention to the best mode of its application. Dr Seaton concluded by adverting to some precautions necessary for medical men to use after attending cases of puerperal fever.

X. Dr. Corfield drew attention to the case of Wilson *v.* Hatton, decided in the Court of Exchequer, with reference to the liability of a person letting a furnished house, which was not in a proper sanitary condition for habitation. In this instance, the house was taken for three months and the agreement signed; but the tenant on entering, immediately perceived a bad smell, refused to occupy the house, and sent for the Sanitary Inspector. The drains were found to be old brick drains, discharging into a cesspool, and all in a very foul condition. Under notice from the Sanitary Authority, the landlady had new pipe drains laid throughout, and three weeks having elapsed, the tenant could have commenced occupation for the rest of the term, the house being pronounced in a fit sanitary condition. She, however, having in the meantime taken another house, refused to do so, which gave rise to an action at law. After a protracted trial, first before two judges, then before three in the Court of Exchequer, Justice Quain's ruling was confirmed to the effect that—1st, Any furnished house taken under such conditions should be in a state of sanitary fitness for occupation; 2nd, That such house must be ready for habitation on the day of agreement. Under such ruling, doubtless any agreement for taking a house, or part of it, where infectious disease had prevailed recently, without proper precautions for disinfection, would become void.

XI. Dr. Thos. Stevenson read a paper on "*An Epidemic of Typhoid Fever connected with Milk Supply.*" The outbreak took place nearly entirely in a group of good, residential houses, which had previously been free from typhoid. Nearly all the cases occurred about the same time, a large proportion revealing the symptoms within four or five days. These

cases were, with few exceptions, conterminous with a certain milk-walk, and radiated in each direction from the milk-shop, being most numerous in its neighbourhood, the numbers gradually decreasing with the distance from this centre. Those who drank largely of milk were the chief persons attacked. The milk was received from three farms in the country; in two of these the surroundings were described as being filthy; in the third they were good. No typhoid fever or disease of the type existed in the neighbourhood, and how the milk became infected with typhoid germs was inexplicable. The proportion of persons supplied by the same milk-walk, who were attacked by the disease, was much smaller than usual—only 5½ per cent.; this might possibly be because only one of the sources was contaminated. It was suggested that the epidemic might have occurred in consequence of a can being rinsed with impure water. The water might have been polluted by the excrement of a casual suffering from the fever. It might again have arisen from the ingestion of ordinary filth by a cow, which imparted the disease to the milk, possibly without injury to the animal itself. Or the milk might have been exposed to typhoid contamination in transit between the farm and the London milk-shop. The supposition as to the infection being derived from water drank by the cow received support from the recently-ascertained fact that pigs, and possibly other animals, suffered from typhoid or kindred diseases; and it might be that the rapidly decomposing liquid drunk by the animal rapidly passed into the glandular structure, and that inflammation of the bowels might be set up in those who partook of the milk into which this entered. It was well known that cows would drink filthy water, which most other animals would refuse. The causes of this outbreak were very uncertain, but it was hoped that these suggestions would be borne in mind by those who might have to investigate typhoid cases of which the origin was not at once apparent.

XII. Mr. Wm. Whitaker, B.A., F.G.S., gave an address, entitled "*Some Questions relating to the Water Supply of London*," which he illustrated by diagrams, maps, and specimens. He observed that the disposition of populations was largely governed in the first instance by the facilities of obtaining a good and abundant water supply near the surface. Thus London originally drew its supply either from the Thames or from springs thrown out from the gravel of the valley by the underlying London clay. With the growth of population

these latter sources became insufficient, and wells had to be sunk into the gravel. A fair supply was, for a time, thus procured. When this became overdrawn, wells were sunk through the London clay to the underlying beds of sand, gravel, and plastic clay, and then to the chalk beneath them. The chalk is of great thickness, it is found continuously under the whole area of the London Tertiary Basin, and contains an abundance of water. Where the chalk crops out from beneath the Tertiary beds, there the water often rises, and, being plentiful, towns and villages are rapidly built all around. The chalk is, however, uncertain in yield of water; sometimes a well has to be sunk much deeper than a neighbouring well before coming upon water. At Barclay's brewery, water is obtained from the chalk in abundance; but at Meux's brewery, under which there is a rise of the chalk, the supply is inadequte, though the boring has been carried to a great depth. Under the chalk is the Upper Greensand, of inconsiderable thickness, and this is divided from the Lower Greensand by the Gault, a clay about 150 feet thick. It was anticipated that an abundant supply of water could be obtained from the Lower Greensand, and borings had been made to reach that formation, but with no satisfactory result. At Kentish Town, a mass of variously coloured clays, &c. (of doubtful age), had been found beneath the Gault. The Metropolitan Board of Works have bored at Crossness deep into the Gault. At Loughton, the Great Eastern Railway Company have bored through the Gault to water, probably from Lower Greensand. The Messrs. Meux have lately bored through the Gault and reached a hard sandy limestone, supposed to belong to the Lower Greensand which yielded little water, and beneath which, at a depth of about 1,100 feet, they came to a purplish fissile clay-rock, which, by its fossils, was proved to be Devonian, and the works have been given up. The question thus remained to be solved—Was there a chance of getting water for the Metropolis anywhere within the London Basin? It would appear from examinations already made, that it is unlikely that we should get a large quantity of water from the Lower Greensand, although that formation generally contained much water, for its area at the surface is somewhat limited, and its available supply would seem to be less than that from the chalk. In parts of the valley of the Thames, as at Kingston, water flows away into the river from wells, and by a careful selection of sites, a large amount might be procured at comparatively little expense. Mr. Whitaker traced on a geological map the

various strata of England, showing that the New Red Sandstone covers the largest area of the Midland Counties, and yields a good supply of water where it is not brackish. He concluded by saying that, while apparently we must mainly depend upon the chalk for our London supplies, it is quite possible to supplement that supply by deeper borings, which, in various parts of the London Basin, might tap water bearing Lower Greensand, or even older beds (Jurassic or New Red). At the time when this address was given, a second well at Crossness had just passed through the Gault, and touched a reddish clay, much like New Red Marl.

On Small-Pox becoming prevalent in London, the Society passed the following resolutions, with the view of obtaining speedy information of the occurrence of any case of infectious disease :—

1. That each Medical Officer of Health in London do apply to the Board of Guardians of his District, asking them to request their District Medical Officers to report daily to the Clerk of the Board of Guardians the existence of any case of infectious disease, and that the Clerk be instructed to forward such information immediately to the Local Sanitary Authority, for the use of the Medical Officer of Health.

2. That the Hospitals of the Metropolitan Sick Asylum Board, being practically closed against all but paupers, by the circular letter of the Clerk dated October 24th, 1876, the Vestries and District Boards of the Metropolis, acting independently, or conjointly in combined districts, be requested to consider the advisability of providing hospital accommodation for non-paupers suffering from infectious diseases, who cannot be efficiently isolated in their own houses.

The Society had under its consideration a Report of the General Purposes Committee of the Metropolitan Asylum District Board, respecting the provision for the isolation and treatment of epidemic infectious disease.

The Report stated that "although the duty of providing the means of isolation for persons other than Paupers suffering from infectious disease has been imposed by the Legislature upon the various Vestries and District Boards of the Metropolis, your Committee find that only five out of thirty of these Boards have made any provision."

The Committee stated that this fact confirmed them in their belief that adequate provision for the treatment of epidemic

infectious disease in the Metropolis did not exist, and they submitted the following conclusions at which they had unanimously arrived, viz.:—

(*a*) That such provision could be best made in a comprehensive and systematic manner by one Central Authority acting for the whole Metropolis, not only for Pauper Patients, but for other classes desirous of Hospital accommodation.

(*b*) That such Central Authority should not be merely a Department of Poor Law Administration, but should have the powers of the Sanitary Acts conferred upon it.

(*c*) That either the Metropolitan Asylums Board should be merged into such Central Authority, or should itself be that authority, in which case its constitution should be altered and adapted to its enlarged duties and responsibilities.

The Society agreed with the opinion of the Managers, "*that adequate provision for the isolation and treatment of epidemic infectious disease in the Metropolis does not exist;*" and under existing circumstances the Society endorsed conclusion (*a*) contained in the above Resolutions, "*that such provision could be best made in a comprehensive and systematic manner by one Central Authority acting for the whole Metropolis.*"

As regards the constitution of the Authority and the administration of the infectious disease Hospitals, the Society was of opinion that such Hospitals, regarded in the light of a sanitary provision for the advantage of the general population, should be completely dissevered from any relation with pauperism.

The attention of the Council was particularly directed to the "Public Health (Metropolis) Bill," introduced by Mr. Sclater-Booth and Mr. Salt, and the following draft Report was drawn up, and extensively circulated amongst all those especially concerned in the Sanitary administration of the Metropolis:—

Report of the Council on the "Public Health (Metropolis) Bill," introduced by Mr. Sclater-Booth and Mr. Salt, June, 1877.

The Council refrains from making any observations on those clauses of the Bill that are simply reproductions of provisions in existing Acts relating to the Metropolis; and restricts its comments to those clauses that are new, or of new application to the Metropolis, or that have been altered from

existing Acts. Upon certain of these clauses, numbered as below in the Bill, the Council submits the following remarks—

§ 37 has been altered from the corresponding clauses of the Sanitary Act, 1866, and the Public Health Act, 1874, by the omission of all mention of an Authority that shall confirm the bye-laws to be made under the section. The omission (unless it is supplied by § 89) is undesirable, as a confirming authority can render valuable assistance to local authorities by securing such reasonable uniformity as is proper to be had in bye-laws made for various districts.

§ § 49—55 are clauses reproduced from the Diseases Prevention Act of 1855, and from a related clause of the Sanitary Act, 1866. They are none of them new, but it is to be observed that they appear in the Bill in an entirely new relation. The Diseases Prevention Act was for occasional use, in the event of some exceptional epidemic appearing in England; and has, in fact, never been put in force for any disease but cholera. As the clauses now stand there is nothing to show that they are not intended for application to the case of any epidemic or infectious disease that may be "formidable," while the use of the word "endemic," in a clause relating to the Metropolis, actually appears to suggest that the § § 49—55 have application to the current diseases liable to prevail, at times with exceptional intensity, in the Metropolis. Either the heading to these sections, or the words of § 49, appear to require alteration, in order that the intention of the Diseases Prevention Act—that the provisions of that Act shall be for exceptional use—shall remain unchanged. The words "cholera, yellow fever, or plague," might properly replace the words "epidemic diseases" in the heading, or the words "formidable epidemic, endemic, or infectious disease," in § 49. The word "endemic" certainly has no place in that clause.

If indeed the promoters of the Bill saw fit to take for the Government power to make regulations on the subject matters numbered 1 and 2 in clause 49, taking this power for use generally in the case of any serious current epidemic, the provision would indeed be a new one, but there would appear to be no objection to such power being conferred.

§ § 56—64. These clauses relate to hospitals, and most of them are new. Upon the subject of the provision of hospitals for the sanitary purposes of the Metropolis, for the purpose essentially of limiting the spread of dangerous infections, the Society has recently, at the instance of the Metropolitan Asylums Board, expressed its opinion as follows:—"The Society agrees with the opinion of the Managers, '*that adequate provision for the isolation and treatment of epidemic infectious disease in the Metropolis does not exist;*' and under existing circumstances the Society endorses the first conclusion (*a*) contained in the Managers' Resolutions—'*that such provision could be best made in a comprehensive and systematic manner by one Central Authority acting for the whole Metropolis.*'

"As regards the constitution of the Authority and the administration of the Infectious Disease Hospitals, the Society is of opinion that such hospitals, regarded in the light of a sanitary provision for the advantage of the general population, should be completely dissevered from any relation with pauperism."

In comment upon clauses 56—64 of the present Bill, the Council re-affirms these opinions of the Society, and desires to add two observations on the

proposals of the Bill. (*a*) The expenses of maintenance of a patient sick of infectious disease in a hospital, should not be regarded (as § 57 of the Bill proposes to regard them) "as a debt due from such patient to the local authority," except with reference, first, to the ability of the patient to pay, and secondly, to the circumstances which led to his removal to hospital; for example, how far the removal was for the public object of preventing the extension of the disease. (*b*) It is expedient, with a view to encourage the use of hospitals as means of isolation, that the gratuitous reception and treatment of any person in any hospital for infectious disease should (on the analogy of the Vaccination Act) be declared not to constitute pauper relief.

§ 68 is a new clause, referred to in the preamble of the Bill, respecting the foundations of houses. The power of making bye-laws on this subject should extend beyond the one matter considered in the clause. Bye-laws are required (*a*) to prevent dampness of walls by requiring in certain cases damp-proof courses and the like; (*b*) to provide for ventilation of the space between the earth and the flooring of the lowest room of a house; and (*c*) for the bedding of drains in concrete, where such a precaution is needed for the wholesomeness of the foundations. It does not appear that there is, at present, any power to make bye-laws for the metropolis in regard of these matters.

[The Council does not refer to other aspects in which the existing powers of regulating construction of buildings by bye-laws are defective.]

§ 69, empowering the Commissioners of Sewers and the Metropolitan Board of Works to make bye-laws for regulating Dairies and Cowsheds, might usefully provide for such bye-laws being subject to the confirmation of Government; and it should be clearly stated, what appears to be the intention of the Bill, that the bye-laws are to be carried out by the several Vestries and the District Boards acting as local authorities.

It is not clear whether § 89 sufficiently provides for confirmation, except as concerns penalties.

§ 82 introduces some alterations on the section of the Nuisances Removal Act, which it professes to re-enact, and these alterations should include an authority to the Medical Officer of Health, co-ordinate with that proposed to be given to the Surveyor and Inspector of Nuisances, to authenticate notices issued by a local authority.

§ 94 confers upon the Commissioners of Police, in addition to their former functions of executing the Common Lodging-houses Acts, powers of acting, as local authorities may act, for the abatement of nuisances in Common Lodging-houses within the Metropolis. It is important that it should be made clear whether the action of the Commissioners in the exercise of the powers of local authorities will in any way supersede or interfere with the duty of the Vestries and District Boards to attend to the sanitary state of Common Lodging-houses. Experience has shown that any such supersession or interference would be most undesirable.

[Although, in conformity with the principle of this Report, the Council has adverted to no other matter than that professedly dealt with by the Bill, nor with any matter except so

far as it introduces fresh legislation, there is one point of so much importance, and that can so readily be enacted, that the Council thinks right to make exception in regard of it. The substitution of "shall" for "may" in the first line of § 40, and the inclusion of the subject matter of that clause among the objects for which local authorities shall have power to combine, would lead to a far more efficient performance of disinfection than under the present law can be attained.]

A communication was addressed to the Society by the North Western Association of Medical Officers of Health, respecting the "Tenure of Office by Medical Officers of Health," requesting the co-operation of the Society, when the following resolution was agreed to :—

"It is desirable, in order to secure the due performance of their duties by Medical Officers of Health of Extra-Metropolitan Districts, that their appointments should be, as in the case of the Poor Law Medical Officers, permanent, and terminable only 'until he shall die, or resign, or be proved to be insane by evidence which the Local Government Board shall deem sufficient, or become legally disqualified to hold such office, or be removed by the Local Government Board.' Also that no reduction in the salary of any Extra-Metropolitan Medical Officer of Health shall take place without the santion of the Local Government Board."

[The words between inverted commas are those used in the regulations concerning Medical appointments under the Poor Law.]

The Secretaries have the pleasure of announcing that the following papers have been promised for the ensuing session—

1877.

Oct. 19th—The President will deliver an Inaugural Address.

Nov. 16th—Professor D. T. Ansted, F.R.S., F.G.S., on "*Rivers, and their relation to Public Health.*"

Dec. 21st—

1878.

Jan. 18th—A. Haviland, Esq., on "*The Climate, Geology, and Distribution of Diseases of London.*"

Feb. 15th—Dr. C. Meymott Tidy, on "*Some Points connected with the Analysis and Combustion of Coal Gas.*"

Mar. 15th—

Apr. 19th—A. Wynter Blyth, Esq., on "*Cancer, its Causes, its History, and Prevention.*

May 17th—Harry Leach, Esq., on "*Port Sanitary Work.*"

J. NORTHCOTE VINEN, M.D.,
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W. H. CORFIELD, M.D.,
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} HON. SECS.

July, 1877.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

Receipts and Disbursements from July, 1876, to July, 1877.

JOHN LIDDLE, ESQ., TREASURER.

Dr	CASH.	£	s.	d.
To Balance in hand, July, 1876	.. .. ..	27	1	10
,, Subscriptions, &c.	.. ..	44	3	6
		£71	5	4

	CONTRA.	Cr. £	s.	d.
By Printing, &c.	.. ..	34	13	9
,, Subscriptions to Scottish Hospital	.. ..	4	4	0
,, Refreshments, &c.	.. ..	9	11	5
,, Collector's Commission, Postage, &c.	.. ..	2	15	6
,, Collection of Samples of Water for Analysis	..	6	0	0
,, Petty Cash Disbursements	.. .. ..	1	15	5
		£59	0	1
,, Balance in hand	.. ..	12	5	3
		£71	5	4

Examined and found correct,

S. R. LOVETT,
J. NORTHCOTE VINEN,

Society of Medical Officers of Health.

BYE-LAWS.

OBJECTS.

1. The objects of the Society are (1) mutual assistance in promoting sanitary improvement, and (2) the advancement of sanitary science in general.

CONSTITUTION.

2. All acting or retired Medical Officers of Health shall be eligible for election as members of the Society. The members of the Society shall consist of two classes—*Metropolitan and Extra-Metropolitan* members.

3. Metropolitan members shall pay an entrance-fee of one guinea, and such annual subscription, not exceeding one guinea, as shall be determined by the Society at each annual meeting.

4. Extra-Metropolitan members shall pay an entrance-fee of half-a-guinea, and an annual subscription of one-half the current rate paid by the Metropolitan members.

ASSOCIATES.

5. Gentlemen not being Medical Officers of Health, but engaged in the promotion of sanitary science, shall be eligible for election as Associates of the Society.

HONORARY MEMBERS.

6. Distinguished persons, known to interest themselves in matters relating to public health, shall be eligible for election as Honorary Members of the Society.

7. Honorary Members and Associates shall have the privilege of attending the ordinary meetings of the Society, and of taking part in the discussions; but they shall not vote on any subject put from the chair.

ELECTION OF MEMBERS, ASSOCIATES AND HONORARY MEMBERS.

8. Candidates for election as Members, Associates, or Honorary Members, shall be proposed (in writing) by two or more members at a meeting of the Society, and be balloted for by the members present at the next meeting, such meetings not being special; and the names of candidates shall be announced in the circular convening the meeting at which the election is to take place. No candidate shall be elected unless four-fifths of those voting shall be in favour of the election.

OFFICERS.

9. The officers of the Society shall consist of a President, two or more Vice-Presidents, a Treasurer, and two Secretaries. The election of officers shall take place at each annual meeting, except in the case of vacancies arising from any cause, when a special meeting may be called; and shall be by ballot out of names first duly proposed and seconded. All the officers shall be eligible for re-election.

MEETINGS.

10. The ordinary meetings of the Society shall be held on the third Friday in each month, at 7.30 p.m., from October to May inclusive.

11. The annual meeting of the Society shall be held on the second Wednesday in July, at 4 p.m.

12. Special meetings may be convened by the President, the Secretaries, or by requisition signed by any five members of the Society.

13. Any meeting may be continued by adjournment.

14. The circular convening any meeting shall specify the business to be transacted.

15. Visitors may be introduced by any member of the Society to any ordinary meeting, and shall be entitled to take part in discussions on the papers read thereat.

16. The President shall determine what subjects may be discussed at any meeting, other than those placed on the notice convening the meeting.

17. All questions shall be decided by a majority of votes on a show of hands; and in case of an equality, the Chairman shall have a second or casting vote. (Without the special permission of the Chairman, no one shall speak during any discussion of a paper for a longer period than ten minutes, or more than once on any paper.)—*See Minutes of Meeting held Oct. 16th, 1875.*

18. The President, if present, shall take the chair; and in his absence, it shall be taken by one of the Vice-Presidents. In the absence of the President and the Vice-Presidents at the time fixed for the meeting, the members present shall elect a chairman for the occasion.

19. The order of proceeding at the ordinary meetings shall be as follows:—

Chair taken.
Minutes of last meeting.
Reports of Committees.
Correspondence.
Election of Members, Associates, and Honorary Members.
Miscellaneous business.
Papers read and discussed.

20. The business transacted at the annual meeting shall be as follows:—

Chair taken.
Minutes of last annual meeting.
Election of Members, Associates, and Honorary Members.
Treasurer's Account.
Report of Council.
Election of Officers.

GENERAL MANAGEMENT.

21. The General Management of the Society shall be vested in a Council to be elected at the Annual Meeting, in the manner appointed for the election of officers. The Council shall consist of the officers and of twelve members, six of whom shall be Metropolitan and six Extra-Metropolitan.

22. The Council shall consider all matters referred to them, and report thereon to the Society. They shall also audit the Treasurer's account.

23. Committees may be formed for the consideration of special subjects.

24. The officers of the Society shall be *ex officio* members of all committees.

25. The President, the Secretaries, or any three members of the Council, shall have the power of calling a meeting of the Council.

CHANGES IN BYE-LAWS AND REMOVAL OF MEMBERS.

26. Notice of any proposed change in the bye-laws shall be sent by post to each member of the Society, at least seven days before the meeting at which the proposed alteration is to be discussed.

27. Any member desiring to withdraw from the Society shall signify the same by letter to the President or the Secretaries, but shall be liable to pay whatever is due from him to the Society at the time of his withdrawal.

28. Whenever there shall appear cause, in the opinion of the Council, for the removal of any Member, Associate, or Honorary Member from the Society, a statement of the circumstances relating thereto shall be prepared by the Council and submitted to the Society. A copy of the statement shall be forwarded to the members, with the notices summoning the meeting at which it is to be considered. On the question of such removal being put to the ballot, and four-fifths of the members present voting for it (ten at least, including the Chairman, being present), the Chairman shall declare such member removed from the Society. A member thus removed shall not be eligible for re-election unless on the written nomination of at least six members of the Society.

SUBSCRIPTIONS.

29. Subscriptions shall be payable in advance, and shall be due on the first day of August in each year. Any member neglecting to pay his subscription longer than twelve months after it has become due, shall be liable to have his name removed from the list of members of the Society.

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